

16/8/23

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Question Paper Code	12142
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B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2023
 First Semester
Computer Science and Business System
20ESEE105 - PRINCIPLES OF ELECTRICAL ENGINEERING
 (Regulations 2020)

Duration: 3 Hours

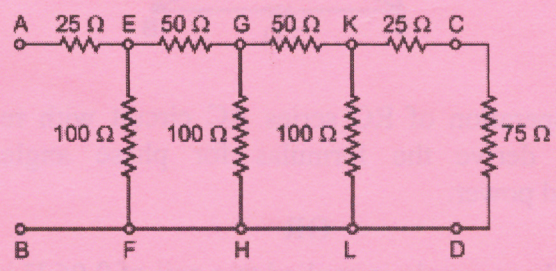
Max. Marks: 100

PART - A (10 × 2 = 20 Marks)
 Answer ALL Questions

- | | |
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| | <i>Marks,</i> |
| | <i>K-Level, CO</i> |
| 1. What is the maximum safe current flow in a 47 Ω, 2 W resistor ? | 2,K1,CO1 |
| 2. Compare between Active and Passive Elements of electric circuit. | 2,K2,CO1 |
| 3. Outline the procedure for finding maximum power transfer theorem. | 2,K2,CO2 |
| 4. What are the limitations of thevenin's theorem? | 2,K1,CO2 |
| 5. Define capacitive reactance. | 2,K1,CO3 |
| 6. Compare true power and apparent power. | 2,K2,CO3 |
| 7. What is electric intensity? | 2,K1,CO4 |
| 8. Summarize electromechanical energy conversion. | 2,K2,CO4 |
| 9. List the wiring accessories | 2,K1,CO5 |
| 10. What are the safety devices and system? | 2,K1,CO5 |

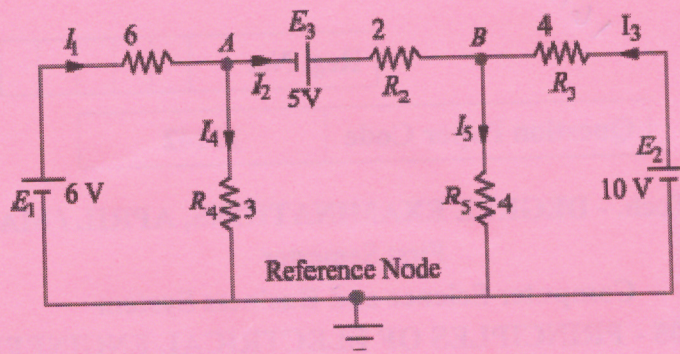
PART - B (5 × 13 = 65 Marks)
 Answer ALL Questions

11. a) Calculate the equivalent resistance of the below given ladder network. 13, K2, CO1

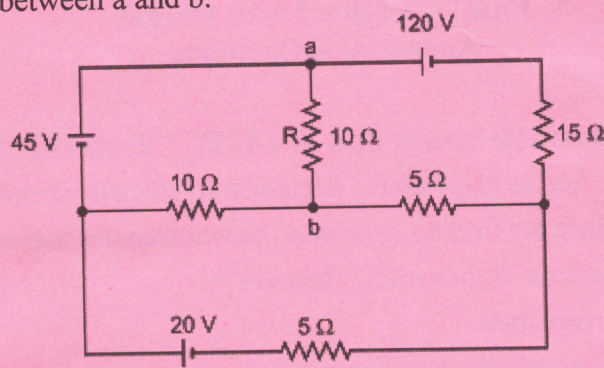


OR

- b) Determine the branch currents of the network by using Nodal Analysis 13, K2, CO1

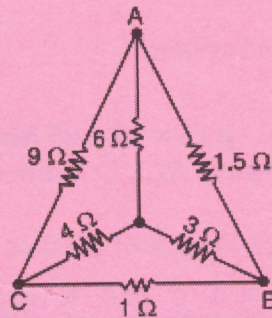


12. a) Using Thevenin's theorem, find the current through the resistance R connected between a and b. 13.,K3,CO2



OR

- b) Find the resistances between A and B, B and C & C and A by using delta / star transformation. 13,K3,CO2



13. a) Explain the operation of RC series AC circuit with relevant phasor diagram and derive the formulas for phase angle, impedance, admittance and power. 13,K2,CO3

OR

- b) A 230 V, 50 Hz ac supply is applied to a coil of 0.06 H inductance and 2.5 ohm resistance connected in series with a 6.8 μF capacitor. Infer (i) impedance (ii) current (iii) phase angle between current and voltage (iv) power factor and (v) power consumed. 13,K2,CO3

14. a) Compare the similarities and dissimilarities between magnetic and electric circuits. 13,K2,CO4

OR

- b) Explain the capacitance of capacitors connected in series and parallel. 13,K2,CO4

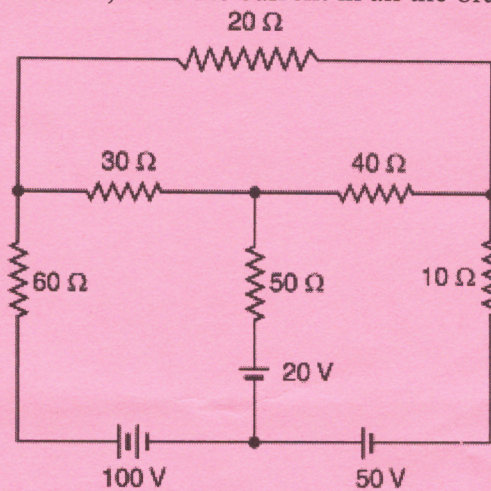
15. a) Explain the working and measurement of single phase wattmeter. 13,K2,CO5

OR

- b) Summarize the need for earthing and its types. 13,K2,CO5

PART - C (1 × 15 = 15 Marks)

16. a) Using the mesh method, infer the current in all the branches. 15,K2,CO1



OR

- b) Determine the total power consumed by the network. 15,K2,CO1

